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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/040,276  | 11/09/2001  | Daniel S. Gritter    | POU901034US1        | 9648             |
| 46369   | 7590        | 01/13/2006           | EXAMINER            |                  |
| HESLIN ROTHENBERG FARLEY & MESITI P.C.<br>5 COLUMBIA CIRCLE<br>ALBANY, NY 12203 |             |                      | YIGDALL, MICHAEL J  |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2192                |                  |

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/040,276

Applicant(s)

GRITTER, DANIEL S.

Examiner

Michael J. Yigdall

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 45-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 45-64 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 19, 2005 has been entered. Claims 45-64 are now pending.

### ***Response to Arguments***

2. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 45-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,263,489 to Olsen et al. (art of record, "Olsen") in view of U.S. Patent No. 6,282,698 to Baker et al. (now made of record, "Baker").

With respect to claim 45 (new), Olsen discloses a method of restoring debugging breakpoints (see, for example, the abstract), said method comprising:

(a) having a breakpoint that is set to a selected step of a first version of source code of a program (see, for example, column 12, lines 1-3, which shows having a breakpoint that is set to a selected step in the source code of a program), said program being absent embedded debug commands (see, for example, column 4, lines 12-28, which shows illustrative source code that is absent embedded debug commands);

(b) creating an instruction profile for the selected step, said instruction profile comprising one or more attributes of one or more machine instructions generated for the selected step and one or more attributes of zero or more other machine instructions generated for the first version of source code (see, for example, column 12, lines 3-15, which shows calculating an instruction profile for the selected step that comprises one or more attributes of one or more machine code instructions generated for the selected step and other instructions in the source code); and

(c) automatically restoring the breakpoint to the selected step of a modified program (see, for example, column 13, lines 8-12, which shows automatically restoring the breakpoint, and column 5, lines 28-30, which shows that the breakpoint is restored to the selected step), in response to modification of the first version of source code to provide the modified program, wherein the selected step is at a different location within the modified program (see, for example, column 2, lines 63-67, which shows that the source code was optimized to provide a modified program, and that the selected step does not correspond to the same location).

Olsen discloses that the automatically restoring comprises comparing one or more attributes of the one or more machine code instructions with the one or more attributes of the instruction profile created based on the source code (see, for example, column 12, lines 15-63) to determine the different location (see, for example, column 12, line 64 to column 13, line 4), but

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does not expressly disclose that the modified program has a second version of source code, and that the automatically restoring comprises comparing one or more attributes of one or more machine instructions generated for the second version of source code with one or more attributes of the instruction profile created based on the first version of source code.

However, Baker discloses comparing one or more attributes of the one or more binary code instructions generated for different versions of source code to find similarities in the programs, even if the source code is not accessible (see, for example, column 3, lines 17-31). In Baker, the first version of source code is modified to provide a modified program having a second version of source code (see, for example, column 1, line 64 to column 2, line 8). Baker further discloses disassembling the binary code instructions and preprocessing the disassembled instructions to create an instruction profile that comprises one or more attributes of the binary code instructions (see, for example, blocks 120 and 130 in FIG. 1).

One of ordinary skill in the art would have been motivated to restore debugging breakpoints regardless of whether it is an optimization that modifies the program (see, for example, Olsen, column 2, lines 63-67), or a modification of the source code that modifies the program (see, for example, Baker, column 1, line 64 to column 2, line 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate Baker's instruction profile into Olsen's instruction profile, and to not only compare the one or more attributes of the one or more machine code instructions with the one or more attributes of the instruction profile created based on the first version of source code, as in Olsen, but to do so when the machine code instructions are generated for a second version of source code, as in Baker.

With respect to claim 46 (new), the rejection of claim 45 is incorporated, and Olsen in view of Baker further discloses that the comparing comprises comparing one or more operation codes of the one or more machine instructions generated for the second version of source code with one or more operation codes of the instruction profile to determine which machine instruction of the modified program corresponds most closely to the selected step (see, for example, Baker, column 7, lines 11-30, which shows that the opcodes of the assembly instructions are included in the instruction profile and are compared).

With respect to claim 47 (new), the rejection of claim 45 is incorporated, and Olsen in view of Baker further discloses that the instruction profile further comprises a source line number for the selected step and a length of the first version of source code (see, for example, Olsen, column 8, line 30 to column 9, line 14, which shows that the instruction profile further comprises compiler information that includes source line numbers and lengths of the source code), and wherein the automatically restoring comprises using the source line number and length to determine a starting point within the modified program to select the one or more machine instructions generated for the second version to be used in the comparing (see, for example, Olsen, column 12, lines 15-27, which shows that a starting point for the comparing is determined from the compiler information).

With respect to claim 48 (new), the rejection of claim 45 is incorporated, and Olsen in view of Baker further discloses that the comparing yields one or more difference counts and a difference count having a smallest value indicates the different location (see, for example, Olsen, column 10, lines 12-16, which shows that the comparing comprises finding the difference in

counter values, and column 9, lines 51-54, which shows that the earliest or smallest difference indicates the different location).

With respect to claim 49 (new), the rejection of claim 45 is incorporated, and Olsen in view of Baker further discloses that the different location is identified by a substantial match between one or more attributes of the instruction profile and one or more attributes of one or more machine instructions of the modified program (see, for example, Olsen, column 10, lines 53-63, which shows that a substantial match between the one or more attributes of the instruction profile and the one or more attributes of the machine code instructions of the modified program identifies the different location).

With respect to claim 50 (new), the rejection of claim 45 is incorporated, and Olsen in view of Baker further discloses that the creating comprises choosing a number of machine instructions to be included in the instruction profile (see, for example, Olsen, column 12, lines 3-14, which shows choosing a number of machine code instructions to include).

With respect to claim 51 (new), the rejection of claim 50 is incorporated, and Olsen in view of Baker further discloses that the choosing comprises:

(a) selecting a number of instructions to be included in a calibration profile (see, for example, Olsen, column 5, lines 8-23, which shows selecting a number of instructions to include in a calibration profile);

(b) generating the calibration profile for a chosen line of the program, said calibration profile having the selected number of instructions for said chosen line (see, for example, Olsen,

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column 4, line 66 to column 5, line 8, which shows calculating or generating the calibration profile for a chosen location);

(c) comparing one or more attributes of said calibration profile to one or more attributes of at least one line of code of the program to obtain a result (see, for example, Olsen, column 12, lines 15-63, which shows comparing one or more attributes of the calibration profile to one or more attributes of at least one line of code);

(d) determining whether the result is an unambiguous result (see, for example, Olsen, column 5, lines 38-45, which shows an ambiguous result, and column 5, lines 46-51, which shows determining whether the result is unambiguous); and

(e) repeating, zero or more times, said selecting, said generating, said comparing, and said determining until the determining indicates an unambiguous result, wherein the selected number of instructions increases at each iteration (see, for example, Olsen, column 9, lines 19-49, which shows repeating the steps zero or more times until the result is unambiguous), and wherein the selected number of instructions indicates, when there is an indication of an unambiguous result, the number of machine instructions to be included in the instruction profile (see, for example, Olsen, column 10, lines 4-11, which shows indicating the instructions to include in the instruction profile when the result is unambiguous).

With respect to claim 52 (new), the rejection of claim 45 is incorporated, and Olsen in view of Baker further discloses that said automatically restoring is performed by a debugger (see, for example, Olsen, column 3, lines 57-67, which shows the debugger).



With respect to claims 53-58 (new), the claims recite a system that corresponds to the method of claims 45-52 (see the rejection of claims 45-52 above).

With respect to claims 59-64 (new), the claims recite an article of manufacture that corresponds to the method of claims 45-64 (see the rejection of claims 45-52 above).

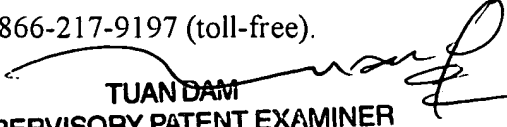
### *Conclusion*

5. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. U.S. Patent No. 6,161,216 to Shagam discloses a source code debugging tool. U.S. Patent No. 6,748,584 to Witchel et al. discloses a method for determining the degree to which changed code has been exercised.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Yigdall whose telephone number is (571) 272-3707. The examiner can normally be reached on Monday through Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571) 272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
TUAN DAM  
SUPERVISORY PATENT EXAMINER

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Michael J. Yigdall

Examiner

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